

Dynaturtle Games (programmed in Lynx)

By Dan Lynn Watt

A very brief introduction.

A dynaturtle is a turtle that has been programmed to move according to Newton's law of inertia. This is a simplistic simulation of motion in a frictionless environment. It looks like a regular turtle, but behaves differently.

The dynaturtle does not move until you apply an (instantaneous) force by firing a rocket. The dynaturtle will then continue to move in a straight line with constant speed until you fire a rocket again.

To change direction, you can rotate the dynaturtle right or left and then fire. The dynaturtle does not change direction when you rotate the turtle unless you fire. The new force is applied in the direction the dynaturtle is pointing – and the motion is a combination of the old motion and the one caused by the new force. Once again the dynaturtle moves in a straight line at a new speed.

There are two simple games. An introductory target game to understand the dynaturtle's behavior, and a more challenging racetrack game. You can make the game easier or harder using a slider to change the value of the force applied when you fire the rocket.

For the Dynaturtle Target Game you fire a rocket straight up – then rotate it and fire again to attempt to reach the target. We will explore different strategies for getting the dynaturtle to the target.

The target game is accessed at <https://lynxcoding.club/share/YYr4mOIT>

The Dynaturtle Racetrack Game, is more challenging because the dynaturtle has to keep changing direction to avoid crashing into the outside or inside wall.

The racetrack game is accessed at <https://lynxcoding.club/share/9tnglYSS>

You can play the games using these links.

During the workshop we will also take a look at the very simple procedures that make the dynaturtle work.

If you want to study or remix the procedures, you will need to have a Lynx Coding Club Account. (free for one month). Go to www.lynxcoding.club